Methodology and Background for Patient Migration Interactive Report

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Tableau File

Version: Patient-Migration_2017-2020_v3

SQL code

Version: Available upon request
Each year of data is queried separately to attribute patients to a location in each year and month. Medicare ACO Fee For Service equivalent dollars are included in the Medicare totals.. Both sets of SQL code are needed to query all years of data.
For each year, the file was exported separately and then combined in R Studio to be cleaned and combined to make one large file representing data from years 2017 through 2020. This single flat file is used in Tableau for the interactive report.

Terms

Below is a list of terms used widely throughout the report, and their definitions:

- Hospital Service Area (HSA) is the Vermont Department of Health Version 4 definition. An HSA is the geographical region corresponding to zip codes/towns where patients from the nearest hospital would discharge to.
    - Home HSA or HSA of Residence is defined by the zip code or zip codes included on the patient's eligibility record in the claims database. In this report, we allow patients to live in more than one zip code in the calendar year.
    - HSA of Care is defined by the zip code included on the provider record for the physical address associated with the provider's practice. We do not limit to hospitals in this report, rather the HSA of Care includes all providers and all types of care.
- Spend/expenditure is calculated by the total paid by insurances and the total expected* out of pocket amount. We say expected out of pocket because we do not have record of the actual amounts paid by patients to the providers.
- Medical claims are defined by claims submitted for medical procedures.
- Year is defined by the calendar year in which the patient receives the medical or pharmacy service.
- Insurance is defined as the primary insurance responsible for paying the claims.
    - Medicare includes those Dual-Eligible with Medicaid and includes Medicare Advantage.
    - Medicaid includes all types of Medicaid eligibility.
    - Commercial includes everything non-Medicare and non-Medicaid, and by limiting to the primary insurance for the claim, consequently, also excludes behavioral health carve out plans and supplemental plans.

Data cleaning

The following data cleaning steps were applied.

Claim Selection

We selected claims which were non-orphaned, paid as primary and not duplicates with other third-party payers or managed care. We do not include claims from secondary payers to avoid duplicate services; the money spent by secondary payers on behalf of the patients is captured under the expected member share portion of the total allowed amount. We also grouped claims by medical or pharmacy. The total allowed amount for both claim types is the total paid by insurance plus the expected member share.

Patient selection

Based on the patient eligibility record, we identify those who have a home zip code for Vermont. Any patients who have inconsistent ages in the month or year, or inconsistent biological sex listed from their primary payer, are dropped from the analysis.

Patient hospital service area attribution

For each month of eligibility, the patient record has at least one associated Vermont zip code. This Vermont zip code is then mapped to the Vermont Department of Health Hospital Service Area version 4.

Provider hospital service area attribution

Provider data is mapped to via the paid claims. We use the consolidated provider record along with a curated list of zip codes representing Vermont hospital service areas and neighboring states hospital services areas (New York's Albany Medical Center area and New Hampshire's Dartmouth Hitchcock area) (Attachment 4). Any zip codes that do not fall within Vermont or those two additional health service areas are listed as Other Non-Vermont regions. Lastly, the zip codes used are based on the consolidated provider record's physical zip code. Other choices were mailing or pay to zip codes, but we felt that physical zip codes best represent the geographical distribution of providers.

Data summary

Version: Patient-Migration-Data-2017-2020.xlsx

This report is based on the resident perspective, i.e. where the patient is going for care. We have another, separate report covering the provider perspective, which describes where patients travel from for care. The data presented are based on administrative claims for most of Vermont's insured population. To report on patient migration at the population level, we use the hospital service area of residence and primary insurance type as these have the greatest impact on migration. The summary file is created by aggregating total spend for every patient, month of eligibility, payer, HSA of residence, and HSA of care. Note, within this data structure, patients can live in more than one area in the year and month. We allow these multiples over time because this most accurately represents the complete migration of populations. Also note, this report includes all provider types and all services within the HSA, not just those occurring at the hospitals.

Additional limitations and specifications are listed below:

Claims Included

- This version of the report focuses on medical claims only. Although previous versions incorporated pharmacy expenditures, further exploration of this data is needed to accurately depict utilization and cost.

- This version expands on previous work to add "Care Type," a variable which identifies if the claims are for care received in an inpatient facility setting, outpatient facility setting (includes ER claims), professional office setting, or other (durable medical equipment, hospice, home health, or unclassified).

Payments

- Not all medical expenditures are captured on insurance claims. For example, capitated arrangements between insurers and providers, some case management payments, and pharmacy rebate payments are all examples of important areas of health care spending that are not included in claims.

- We include fee-for-service (FFS) equivalent expenditures for Medicare beneficiaries attributed to an Accountable Care Organization (ACO) to replicate Medicare's own methodology for calculating total expenditures. Medicaid FFS equivalences are excluded because the prospective payments are not reconciled to claims-level expenditures. As a result, this analysis underestimates the total spending associated with Medicaid beneficiaries aligned to an ACO.

Total Medical Expenditures are calculated by taking the sum of the insurance payment, the expected member coinsurance, copay, deductible, and for Medicare, includes the FFS equivalents.

Claims Run Out

- We include claims with dates of service in years 2017 through 2020.

- This version of the report uses VHCURES extract 3000, with incurred claims through 12/31/2020 and paid through 3/31/2021. Medicare incurred through 12/31/2020 and paid through 4/9/21.

Publication information

This Tableau interactive report was approved by the GMCB in December 2019 as part of the two-year analytic plan, designed to support their regulatory work (link here). The completed Version 2 report and visualization presented to the GMCB in August 2021 and is now publicly available on the GMCB Data and Analytics website.

Phase 2 Recommendations for 2022

We anticipate the addition of member demographic details such as ACG risk score per member, per year, and per insurer as well as Accountable Care Organization enrollment indicators. We recommend further investigation into the correct way to assign and utilize this new information.